

THE DISTRIBUTION OF *EUPLOEA DARCHIA NIVEATA* (BUTLER, 1875) (LEPIDOPTERA: NYMPHALIDAE: DANAINAE) IN TORRES STRAIT, QUEENSLAND, AUSTRALIA

TREVOR A. LAMBKIN

School of Biological Sciences, University of Queensland, St Lucia, Qld 4072

(Email: trevor.lambkin@uqconnect.edu.au)

Abstract

A review of the known distribution of *Euploea darchia niveata* (Butler) showed that the taxon predominately occurs on mainland Queensland but also encompasses Thursday (Waiben) Island in the very south of Torres Strait. Based on this review, the record of a single female collected on Darnley (Erub) Island, Torres Strait in April 1910 by Hermann Elgner seems unusual. Despite Elgner's generally high standard in the veracity of his specimen labelling, this particular record is considered to be erroneous. Based on a reconstruction of Elgner's 1910 travels through Torres Strait by using data from specimen labels, a probable explanation for this record is that the specimen was collected on Thursday Island around 29 March 1910, prior to his departure for Darnley Island. On reaching Darnley on 3 April 1910 the specimen was then likely mistakenly labelled as originating from Darnley Island. The suggested narrower range of this taxon highlights the Australian endemic status of *E. d. niveata*.

Introduction

The crow butterfly *Euploea darchia* (W.S. Macleay, 1826) is known from Timor, Banda, Aru and the Kai Islands and northern Australia (Ackery and Vane-Wright 1984, Morishita 1985, Braby 2000). Two endemic subspecies occur within Australian limits. *Euploea d. darchia* is known from coastal Northern Territory including Gove Peninsula (Braby 2000 and pers. comm.) and from the Kimberley area of Western Australia (Braby 2000). *Euploea d. niveata* (Butler, 1875) is recorded predominately from coastal areas of northern Queensland (Braby 2000), where it is known from Thursday (Waiben) Island in Torres Strait south through Cape York Peninsula, including its west coast bordering the Gulf of Carpentaria to Weipa (McCubbin 1971) and Kowanyama (Hopkinson 2011), then south along the east coast to Mission Beach (Braby 2000) and Tully. South of the Wet Tropics, *E. d. niveata* has been recorded sporadically (possibly as vagrants) from Murray Upper (recorded here), Mackay, St Lawrence, Yeppoon, Caloundra, Brisbane and Burleigh Heads (Common and Waterhouse 1981, Braby 2000, Moss 2010, A.G. Orr pers. comm.).

Euploea d. niveata frequents a variety of wet shady habitats, including rainforest, monsoonal vine forest and wet coastal swamps (Barrett and Burns 1951, McCubbin 1971, Braby 2000). Although generally uncommon and erratic in its distribution, it is observed more frequently in the very north of its range, for example at Bamaga and Lockerbie at the tip of Cape York Peninsula and on Thursday Island.

While *E. d. niveata* is known essentially from the Queensland mainland, with records from the south of Torres Strait (Waterhouse and Lyell 1914, Lambkin

and Knight 1983, De Baar 1988, T.A. Lambkin unpublished data), there is a longstanding and puzzling isolated record, documented in Waterhouse and Lyell (1914), of the butterfly's occurrence on Darnley (Erub) Island, Torres Strait, a substantial distance across water (approximately 200 km) from Thursday Island and Cape York. In this paper I discuss a likely hypothesis that would account for this record, which in all probability is incorrect, and outline the species' ostensibly restricted distribution in Torres Strait.

Abbreviations of collectors' names or collection repositories are: AIK – A.I. Knight; AM – Australian Museum, Sydney; HE – H. Elgner; MDB – M. De Baar; QDAFFC – Queensland Department of Agriculture, Fisheries and Forestry collection, Brisbane; TAL – T.A. Lambkin; TLIKC – Joint collection of T.A. Lambkin and A.I. Knight, Brisbane.

Material examined

Specimen under review

QUEENSLAND: 1 ♀, Darnley Island, 13.iv.1910 [HE] (AM) (recorded as *E. hyems niveata* [Butler] in Waterhouse and Lyell 1914, p. 23) (Fig. 1).

Additional material examined

QUEENSLAND: 3 ♀♀, Green Hill, Thursday Island, 2.v.1989, 12-15.iv.1992, 3.iii.2004, AIK (TLIKC); 2 ♂♂, 1 ♀, same data except 27-29.iii.1987, MDB (TLIKC); 1 ♂, 1 ♀, same data except 9.iii.2001 (♂), 12.i.1994 (♀), TAL (TLIKC); 1 ♂, Lockerbie Scrub, 14 km NE of Bamaga, 23-31.vii.1983, TAL (TLIKC); 1 ♂, 2 ♀♀, same data except, 21-24.vi.1992, AIK (TLIKC); 2 ♂♂, 17-21 km NE of Bamaga, 3-8.v.1994, AIK (TLIKC); 2 ♂♂, 20 km E of Bamaga, 27.vii.1983, AIK (QDAFFC); 1 ♀, Cape Tribulation, 10.v.1979, TAL (TLIKC); 1 ♂, Kuranda, 21.iii.1975, MDB (TLIKC); 1 ♂, Cairns, 22.v.1982, TAL (QDAFFC); 1 ♂, Flying Fish Point, via Innisfail, 4.v.1978, TAL (TLIKC); 1 ♂, Coquette Point, via Innisfail, 20.iv.1987, TAL (TLIKC); 1 ♂, same data except, 22.iv.1987, AIK (QDAFFC); 1 ♀, El Arish, 19.iii.1975, MDB (TLIKC); 1 ♀, Tully, 22.iv.1982, AIK (QDAFFC); 1 ♂, Murray Upper, 15.ii.1989, MDB (TLIKC); 1 ♀, Burleigh Heads, 9.iv.1977, TAL (TLIKC).

Discussion

Euploea darchia niveata (Butler, 1875) was described (as a subspecies of *Calliploea darchia*) from material (in the original description) from 'Queensland' and 'Australia' (Edwards *et al.* 2001). In a later publication, Butler (1878) recorded a male from Cape York and a female from Fitzroy Island, Queensland as types but Edwards *et al.* (2001) considered that these locations could have been from subsequent accessions to the material used in the original description. In any case, Waterhouse and Lyell (1914) listed several localities for the butterfly, stretching from Cape York south to Mackay on the mainland, with additional records from Thursday and Darnley Islands in Torres Strait. Thursday Island has been a popular destination for butterfly collectors since the late 1800s-early 1900s (Mathew 1885,

Waterhouse and Lyell 1914) and more recently in the 1980s and 1990s, with *E. d. niveata* being frequently observed (Lambkin and Knight 1983, De Baar 1988, T.A. Lambkin unpublished data).



Fig. 1. Elgner's specimen of *Euploea darchia niveata* labelled 'Darnley Island, 13.iv.1910' [forewing length 38 mm]; photograph courtesy of the Australian Museum.

Of particular interest is the Darnley Island record of *E. d. niveata* by Waterhouse and Lyell (1914). This specimen (labelled 'Darnley Island, 13.iv.1910' and housed in the Australian Museum: Fig. 1), is one of many Torres Strait butterflies collected by Hermann Elgner, a German collector who made significant collections of Torres Strait butterflies and dragonflies predominately in the first decade of the 20th Century (Moulds 1977, Dunn 2007) (material housed in the Australian Museum and Museum Victoria). Darnley Island is volcanic in origin (Lambkin 2013) and located in the far eastern sector of Torres Strait. Since the rediscovery of the islands of Torres Strait as a focus for butterfly collecting in the late 1970s and 1980s (Monteith 1978), Darnley Island has been surveyed for butterflies by several collectors, commencing in the 1980s (e.g. Johnson 1983, De Baar 1988), through to the first decade of this century (T.A. Lambkin unpublished data). While several species of *Euploea* Fabricius have been collected over this period on Darnley Island, *E. d. niveata* remains the only *Euploea* taxon not to have been collected or observed there since Elgner's 1910 isolated 'collection'. Apart from this remote record, the butterfly is known in Torres Strait only from

Thursday Island in the very south of the region. *Trophis* (= *Malaisia*) *scandens* (Lour.) Hook. & Arn. (Moraceae), the recorded host plant of *E. d. niveata* (Manski 1939), has a patchy distribution in Torres Strait and is known to occur on Darnley Island (Lambkin and Knight 2005).

Hermann Elgner was based for some of his time in the Torres Strait region at Cape York (Moulds 1977) and undertook collecting forays to several Torres Strait islands (Moulds 1977, Dunn 2007). Of particular interest are his movements through several of the Torres Strait islands in 1910. What can be best determined, according to Moulds (1977) and Dunn (2007), is that Elgner's last reported collecting day on Thursday Island was 29 March 1910, followed by his (only recorded) visit to Hammond (Keriri) Island on 31 March and then to Moa (Banks) Island en route to Darnley Island. He arrived at Darnley Island on the 3 April for an extended period and returned to Cape York in either June or July that same year (Moulds 1977, Dunn 2007).

Dunn (2007) intensively reviewed the movements of H. Elgner, basing his study on roughly 1400 collected specimens. Dunn (2007) considered the accuracy of Elgner's labelling to be 'exemplary' at approximately 99%. While the overall veracity of Elgner's locality records cannot be disputed some errors have been detected (Meyer *et al.* 2004, Dunn 2007). The case of the *E. d. niveata* specimen discussed here seems to be possibly one of the rare Elgner errors in labelling. Although the possibility of a vagrant from the south-west (*i.e.* Cape York or Thursday Island) cannot be entirely discounted, the specimen is of fresh appearance and unlikely to have travelled such a long distance. It seems more likely that it was collected by Elgner on Thursday Island on or prior to 29 March 1910 and was not labelled until after he arrived at Darnley Island on 3 April 1910, thus being mistakenly labelled as originating from Darnley Island in April of that year.

The distribution of *E. d. niveata* appears to be almost entirely confined to mainland Queensland. How far west it extends along the coastal vine scrubs of the Gulf of Carpentaria, possibly into the Gove Peninsula of the Northern Territory, is currently unknown, as this region is rarely visited by lepidopterists. Despite a flurry of collecting, undertaken primarily during the 1980s and 1990s and then, to a lesser degree, since 2000 on several Torres Strait islands, including the southern group of islands that satellite Thursday [Waiben] Island (specifically Horn [Narupai], Hammond and Prince of Wales [Muralag]), Thursday Island remains the only location in Torres Strait where *E. d. niveata* has been observed or collected. However, it is likely that the butterfly might yet be found on those islands that satellite Thursday Island, since they support potential breeding habitat comprising patches of deciduous monsoon forest (T.A. Lambkin unpublished data).

Finally, taking into account the temporal movements of Hermann Elgner through Torres Strait in March and April 1910, and with the weight of

collecting data indicating that *E. d. niveata* appears to be endemic to tropical coastal Queensland and Thursday Island in the extreme south of Torres Strait, it seems unlikely that the butterfly's distribution encompasses Darnley Island as Elgner's label indicates.

Acknowledgements

Appreciation is given to J.S. Bartlett (Brisbane) for provision of the image of the H. Elgner specimen of *E. d. niveata* and providing access to material held in the Queensland Department of Agriculture, Fisheries and Forestry Collection, Brisbane. Thanks also to S. Ginn of the Australian Museum, Sydney for organising approval for publication of the image. M.F. Braby and A.G. Orr kindly provided their personal communications. This work partially fulfills the requirements for a Master of Philosophy degree undertaken by the author at the University of Queensland, Brisbane.

References

- ACKERY, P.R. and VANE-WRIGHT, R.I. 1984. *Milkweed butterflies*. British Museum (Natural History), London; ix + 425 pp.
- BARRETT, C. and BURNS, A.N. 1951. *Butterflies of Australia and New Guinea*. N.H. Seward Pty Ltd, Melbourne; 195 pp.
- BRABY, M.F. 2000. *Butterflies of Australia: their identification, biology and distribution*. CSIRO publishing, Collingwood; xx + 976 pp.
- BUTLER, A.G. 1878. On the butterflies in the collection of the British Museum hitherto referred to the genus *Euploea* of Fabricius. *Journal of the Linnaean Society of London, Zoology* **14**: 290-303.
- COMMON, I.F.B. and WATERHOUSE, D.F. 1981. *Butterflies of Australia*. Angus and Robertson, Sydney; xiv + 682 pp.
- DE BAAR, M. 1988. Insects collected during a trip to Torres Strait 27 March to 10 April, 1987. *News Bulletin of the Entomological Society of Queensland* **15**: 107-117.
- DUNN, K.L. 2007. The geographical movements of Hermann Elgner (d. 1913): a lepidopterist based in Torres Strait, Australia. *Calodema* **10**: 19-34.
- EDWARDS, E.D., NEWLAND, J. and REGAN, L. 2001. Lepidoptera: Hesperioidea, Papilionoidea. In: Wells, A. and Houston, W.W.K. (eds), *Zoological catalogue of Australia*. Vol. 31.6. CSIRO Publishing, Collingwood; x + 616 pp.
- HOPKINSON, M. 2011. New distribution records for several butterfly species, including *Deudorix democles* (Miskin) (Lepidoptera: Lycaenidae), from western Cape York Peninsula. *Australian Entomologist* **38**(2): 91-95.
- JOHNSON, S.J. 1983. A brief look at the butterflies of Darnley Island. *News Bulletin of the Entomological Society of Queensland* **8**: 117-119.
- LAMBKIN, T.A. 2013. A revision of the *Euploea batesii* C. & R. Felder, 1865 'complex' (Lepidoptera: Nymphalidae: Danainae) in mainland Papua New Guinea and Australia, including its biology and biogeography. *Australian Entomologist* **40**(4): 187-218.
- LAMBKIN, T.A. and KNIGHT, A.I. 1983. Butterflies recorded from the Torres Strait and northern Cape York Peninsula regions in July 1983. *News Bulletin of the Entomological Society of Queensland* **11**: 98-103.

- LAMBKIN, T.A. and KNIGHT, A.I. 2005. New Australian butterfly records (Lepidoptera) from Saibai and Dauan Islands, Torres Strait, Queensland. *Australian Entomologist* **32**(2): 49-54.
- MANSKI, M.J. 1939. The *Euploea*s (Rhopalocera) of the Cairns district. *North Queensland Naturalist* **8**: 3-4.
- MATHEW, G.F. 1885. An afternoon among the butterflies of Thursday Island. *Proceedings of the Linnaean Society of New South Wales* **10**: 259-266.
- McCUBBIN, C. 1971. *Australian butterflies*. Thomas Nelson, Melbourne; xxxi + 206 pp.
- MEYER, C.E., BROWN, S.S. and WEIR, R.P. 2004. The first record of *Euploea modesta lugens* Butler (Lepidoptera: Nymphalidae: Danaeinae) from Australia. *Australian Entomologist* **31**(4): 177-180.
- MONTEITH, G.B. 1978. An insect collection from the islands of Torres Strait. *News Bulletin of the Entomological Society of Queensland* **5**: 139-140.
- MOULDS, M.S. 1977. *Bibliography of the Australian butterflies (Lepidoptera: Hesperioidea and Papilionoidea) 1773-1973*. Australian Entomological Press, Greenwich NSW; 239 pp.
- MORISHITA, K. 1985. Danaidae. In: *Butterflies of the South East Asian Islands*. Vol II. Plapac Co, Ltd, Tokyo; 623 pp.
- MOSS, J.T. 2010. The intriguing white-margined crow butterfly *Euploea darchia niveata* (Butler, 1875). *Metamorphosis Australia* **56**: 4-9.
- WATERHOUSE, G.A. and LYELL, G. 1914. *The butterflies of Australia. A monograph of the Australian Rhoplaocera*. Angus and Robertson, Sydney; vi + 239 pp.